

LRRITICAL ITEMS R15F  
FILE: CIL-PL55/2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
FAU/SEPAR- ATOR/ PUMP/MOTOR ASSEMBLY ITEM B23 SV/87994-B (1)  FC72-1 B	E/IR	L237ND7; INTERNAL LEAKAGE, WATER.  CAUSE: SEAL FAILURE, LEAKAGE THROUGH WELDED CLOSURE PLUG & PUMP SEAL CUP.	END ITEM: WATER WILL LEAK INTO THE MOTOR CAVITY & BE DISCHARGED INTO THE VENT STREAM.  GFE INTERFACE: WATER CARRYOVER INTO THE SPACE SUIT ASSEMBLY. POTENTIAL HELMT FOGGING.  MISSION: TERMINATE EVA. LOSS OF USE OF ONE EHB.  CREW/VEHICLE: NONE FOR SINGLE FAILURE. POSSIBLE LOSS OF CREWMAN WITH LOSS OF SGP.	A. BEBEM - A LEAK TIGHT WELD JOINT IS VERIFIED BY TESTING EACH WELD AGAINST A LEAKAGE SPEC OF 1/10-5 SCC/SEC OF HELIUM MAXIMUM AT A DELTA P OF 30 PSIG. THE WELDED CLOSURE PLUG HAS A STRESS SAFETY FACTOR GREATER THAN 500 FOR BLOWOUT PRESSURE.  B. TEST - WCOMPONENT ACCEPTANCE TEST - INTERNAL AND EXTERNAL LEAKAGE ARE CHECK BY PRESSURIZING THE WATER CIRCUIT TO 24-30 PSIA GME. THE ITEM IS IN CHAMBER VACUUM, ALONG WITH THE VENT OUTLET, (LEAKAGE FROM THE VENT DMPLET INDICATES INTERNAL LEAKAGE). LEAKAGE AS MEASURED WITH A MASS SPECTROMETER SHALL NOT EXCEED 4.3 X SCC/SEC. HE.  ICEI PDA TESTING - WITH THE ITEM INSTALLED IN THE PLSS, A COMBINED WATER CIRCUIT LEAKAGE IS PERFORMED. INTERNAL AND EXTERNAL LEAKAGE SHOULD BE VERIFIED. THE ITEM IS PRESSURIZED TO 15.7 - 15.9 PSIG H2O AND LEAKAGE IS MEASURED OVER A 45 MINUTE PERIOD WITH A VOLUETRICMETER. LEAKAGE SHALL BE LESS THAN 6 CC/HR. THIS VALUE IS A SYSTEM LEAK RATE.  CERTIFICATION TEST THE ITEM COMPLETED 10,000 HOURS OF OPERATION AND 8,400 ON/OFF CYCLES EXCEEDING THE 15 YEAR CERTIFICATION REQUIREMENT BY MORE THAN A FACTOR OF THREE. THE 15 YEAR STRUCTURAL VIBRATION, ELECTRICAL VIBRATION AND DESIGN SINCE HAS COMPLETED 12/04. THE FOLLOWING ENGINEERING CHANGES HAVE BEEN INCORPORATED AND CERTIFIED SINCE THIS CONFIGURATION WAS CERTIFIED: 42804-142-35 (CHANGE POWER CONSUMPTION REQUIREMENT - NONE AMPS), 422004-406, 42804-414 (SEAL CUP CHANGE TO ASSURE A GOOD SEAL), 42004-010 WATER PUMP CHANGE FOR INSPECTION IN AREAS THAT ARE SUSCEPTIBLE TO CONTAMINATION, FIVE BEAR EDGES AND BEGINNING OPERATION TO CLOSE AND J-EHB-123-010), 42804-934 (CHANGE BEARING LIMITED LIFE REQUIREMENTS)

SEAL-44-001F  
Page 744

CIL  
 CRITICAL ITEMS LIST  
 FILE: CIL-PLUS/2

NAME P/N QTY	CRET	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
FAM/SEPAR- ATOR/ PLUP/VISOR ASSEMBLY RICH 123 SV78P994-0 123  FC72-2 0	0/10	DISFMT; MATERIAL LEAKAGE, MATER.		<p>G. TEST - CERTIFICATION (CONTIGUED)</p> <p>-RADIOGRAPHIC INSPECTION OF WELD TO ENSURE .010        MIN WELD PENETRATION BEFORE FINAL CO MACHINING.        (NSD NFP)</p> <p>-RADIOGRAPHIC INSPECTION OF WELD TO ENSURE .010        MIN WELD PENETRATION AFTER FINAL CO MACHINING.        (NSD NFP)</p> <p>-LEAK TEST IS PERFORMED TO ENSURE LEAK RATE NOT TO        EXCEED 3 H DR-5 SCC/SEC WHEN INTERNALLY        PRESSURIZED TO 20-25 PSIG.</p> <p>H. FAILURE HISTORY -        J-EMU-82-005 (02-20-201)        F/P/S COULD NOT BE ACTIVATED DUE TO WATER LEAKAGE        INTO THE ELECTRONICS BAYNET THROUGH WELDED PLUG.        CORRECTIVE ACTION: X-RAY, OYE PENETRANT CHECK AND        REWORK LEAKAGE CHECK OF WELD/PLUG WELD.</p> <p>I. CROWN TERMINAL -        TESTED PER FC72-2-005, WATER SERVICING, LEAKAGE        AND GAS REMOVAL.</p> <p>F. OPERATIONAL USE -        CROWN MESSAGE -        PWR QVA: DOUBLE-SHOOT PROBLEM, IF NO SUCCESS        CONSIDER EMU B IF AVAILABLE. EMU B FOR SCU        WITHOUT FAM.</p> <p>EVA: IF HELMET FOGGING OCCURS OR SIGNIFICANT        AMOUNTS OF WATER DETECTED EXITING HELMET VENT        SUCT, TERMINATE EVA. OPEN HELMET PURGE VLV AND        DEACTIVATE FAM TO PROTECT AGAINST POSSIBLE TOXIC        GAS FROM LEAK CARTRIDGE.</p> <p>TRAINING -        STANDARD EMU TRAINING COVERS THIS FAILURE MODE.        OPERATIONAL CONSIDERATIONS -        FLASH MILES BEFORE EMU C2 TO DENY ON SCU        (AVAILABLE FOR DESIGN IF REQUIRED).        EVA CHECKOUT PROCEDURES VERIFY MESSAGE INTEGRITY        AND SUSTAIN OPERATIONAL STATUS PRIOR TO EVA.        REAL TIME DATA SYSTEM ALLOWS BOARD MONITORING OF        EMU SYSTEMS.</p>